Fishery Management Report No. 05-11

Northern Southeast Alaska Herring Spawn-On-Kelp Pound Fishery, 2005

by

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and

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March 2005

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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The Division of Sport Fish Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Since 2004, the Division of Commercial Fisheries has also used the Fishery Management Report series. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm. This publication has undergone regional peer review.

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INTRODUCTION

This plan provides an overview of the 2005 management approach, permit requirements, and regulations for the Northern Southeast Alaska Hoonah Sound and Tenakee Inlet spawn-on-kelp fisheries. 5 AAC 27.185 MANAGEMENT PLAN FOR HERRING SPAWN ON KELP IN SOUTHEASTERN ALASKA establishes the regulatory framework for the Northern Southeast Alaska spawn-on-kelp fisheries.

A **closed pound fishery** involves releasing sexually mature herring into a net impoundment in which kelp is suspended. Herring are released from the pound after they spawn on the kelp, and the kelp with eggs is then sold. An **open pound fishery** involves suspending kelp from a floating frame structure in an area where herring are spawning. Herring are not impounded by a net but instead are allowed to naturally spawn on the suspended kelp. The kelp blades with eggs are removed from the water and then sold. Both types of fisheries have in common the same type of product; spawn on kelp.

In both of the northern Southeast Alaska herring spawn-on-kelp fisheries, a closed or an open pound may be operated by a single Commercial Fisheries Entry Commission (CFEC) permit holder, or a pound may be operated by two or more CFEC permit holders. To reduce the amount of gear on the fishing grounds and the associated handling and impoundment of herring the Alaska Department of Fish and Game (ADF&G) has provided an incentive to multiple permit pound operators by giving them a larger allocation of *Macrocystis* kelp blades or fronds.

The Alaska Board of Fisheries met in Sitka in January 2003 and modified the existing regulations for the herring spawn-on-kelp fishery in Section 13-C (Hoonah Sound) and created a new herring spawn-on-kelp fishery in District 12 (Tenakee Inlet). The District 12 fishery will be considered as part of the Northern Southeast spawn-on-kelp limited entry fishery.

The Alaska Board of Fisheries found that the use of test fish revenues to develop new commercial herring fisheries is consistent with the ADF&G Division of Commercial Fisheries Test Fishery Policy. The department conducted the first closed pound spawn-on-kelp test fishery in Hoonah Sound in 2003. The test fishery was continued in 2004 and included test pounds in both Hoonah Sound and Tenakee Inlet. A summary of the 2003 and 2004 test fishery is provided in Table 8. The department sought bids from fishermen to conduct spawn-on-kelp test fisheries in Hoonah Sound and Tenakee Inlet in the spring of 2005. Details of the test fishery were outlined in news release dated January 7, 2005 and the deadline for bids was February 22, 2005 by 12:00 noon.

ADF&G biologists listed at the end of this document are available to answer questions concerning this management plan. Pound fishery participants are also encouraged to carefully review the section of this plan containing requirements of other agencies.

HERRING STOCK STATUS AND GUIDELINE HARVEST LEVEL

METHODS OF FORECASTING HERRING BIOMASS

The Biomass Accounting (BA) method of forecasting has been used to determine the 2005 season's guideline harvest level (GHL) in Hoonah Sound. The BA method uses the most recent year's spawn deposition estimate of eggs, the age composition of the spawning biomass, and weights-at-age to project the following year's return of mature herring. The Hoonah Sound projection also uses the average survival estimate from the age-structured analyses (ASA) from four other areas in Southeast Alaska, and maturation rates estimated by ASA for the nearby Sitka Sound herring stock. A median historical level of recruitment of age-3 herring specific to Hoonah Sound is also applied to forecast biomass.

This BA method is unlike the ASA method used for forecasting herring biomass for several of the larger stocks in Southeast Alaska, including Tenakee Inlet. The ASA method also uses the spawn deposition estimate of eggs and age composition to project the following year's return of mature herring; however, the ASA model calculates survival and maturation rates specific to the spawning stock. The ASA model utilizes historic information of spawn deposition and age composition to provide an estimate of the most recent biomass, from which the forecast biomass for the next year is determined. ADF&G is considering conversion to the preferred ASA method of forecasting the Hoonah Sound stock once they have available an adequate time series of data for the calculations.

Once a forecast of the season's biomass is calculated, a standard sliding harvest rate formula allows for a harvest rate of between 10 and 20% of the forecast mature spawning biomass. When the spawning biomass forecast for an area equals the threshold, the exploitation rate is 10% of the estimated spawning biomass. For each incremental increase in the spawning biomass equal to the threshold, the exploitation rate increases by 2%.

Hoonah Sound (Section 13-C)

A summary of spawning dates, mileage of spawn, spawning stock size, and spawn on kelp (SOK) harvested for Hoonah Sound (Section 13-C) is presented in Table 1. Since ADF&G first monitored the population in 1971, the Hoonah Sound herring spawning stock has averaged 7.1 nautical miles of spawn and 2,691 tons of spawning biomass. Since 1990, the year the spawn-on-kelp fishery started, the stock has maintained an average of 11.2 nautical miles of spawn and 4,593 tons of spawning biomass. The highest recorded spawning biomass occurred in 2003, estimated at 9,423 tons.

In 2004, approximately 11.1 nautical miles of spawn was observed from April 22 through April 29. The spawning biomass estimate derived from dive surveys was 7,502 tons of herring. Age composition of the 2004 spawning herring was 1% age-3, 6% age-4, 13% age-5, 26% age-6, 26% age-7, and 30% age-8+ (Table 2).

Based on spawning age structure and biomass in 2004, the BA method forecast return for Hoonah Sound in 2005 is **4,357 tons.** This forecast is well above the threshold or minimum amount of herring spawning biomass of 1,000 tons necessary for a fishery. The GHL for 2005 is **728 tons** based on a 16.7% harvest rate. The expected age structure for 2005 is 3% age-3, 2% age-4, 7% age-5, 13% age-6, 25% age-7, and 50% ages-8+ (Table 2).

Herring spawning normally occurs in Hoonah Sound during the last two weeks of April. The earliest recorded spawning occurred on April 13, 1990, and the latest recorded spawning was on May 17, 1971. During the 2004 season, spawning occurred from April 22 through April 29. Traditionally, spawning occurs in Hoonah Sound around Vixen and Emmons Islands and the shoreline from Fick Cove to Ushk Point. Spawning has also been observed in Peril Strait along the Chichagof Island shoreline from Finger River to Broad Island, at False Island, and along the Baranof Island shoreline from Nismeni Point to Point Benham.

In Hoonah Sound during the 2004 season, a total of 106 permit holders made landings totaling 237.4 tons of spawn on kelp (Table 3). This was a record harvest shattering the 2003 record harvest by nearly 100 tons. The 2004 season fishery ex-vessel value was $2.07 million.

Tenakee Inlet (Section 12-A)

The Tenakee Inlet stock has been utilized for the winter food and bait fishery since the 1978/1979 season. In years that a fishery was conducted, the GHL for the winter food and bait fishery in Tenakee Inlet has ranged from a low of 200 tons in 1978/1979 to a peak GHL of 1,700 tons in 1985/1986 (Table 4).

ADF&G has been conducting aerial surveys in Tenakee Inlet since the early 1970s to define herring spawn deposition areas and to estimate the total miles of spawn to provide an indication of herring stock size or biomass. Aerial surveys were supplemented with hydroacoustic surveys from 1979 through 1986 to provide a more refined estimate for biomass of Tenakee Inlet herring. Starting in the spring of 1987, spawn deposition dive surveys were routinely used, in addition to aerial surveys, as the most reliable and accurate means to assess the spawning biomass.

In the early to mid-1990s, the Tenakee Inlet herring stock was at a depressed level due to a period of low recruitment beginning in 1988. It was not until 1996 that a strong recruitment of three-year-old herring entered into the population boosting the biomass to over 4,500 tons, up from 200 tons the previous year. The biomass peaked in 1998 at 11,000 tons and has since declined back down to around 3,300 tons in 2004.

Dive surveys, conducted in the spring of 2004, estimated the Tenakee Inlet herring spawning biomass at **3,608 tons** of herring. In Tenakee Inlet, the threshold biomass needed before a fishery can occur is 3,000 tons. The dive survey biomass estimate was used in conjunction with the ASA model to provide a return forecast for the 2004/2005 season of 4,362 tons of herring. The forecast, compared to threshold biomass levels allows for a **quota of 476 tons** based on a harvest rate of 10.9%. The age composition of the 2004 spawning population was 1% age-3, 15% age-4, 22% age-5, 20% age-6, 20% age-7, and 22% age-8+. The expected age structure for 2005 is 19% age-3, 3% age-4, 28% age-5, 19% age-6, 18% age-7, and 13% ages-8+ (Table 5). The minimum allowable GHL for an open pound fishery is 50 tons and the minimum GHL for a closed pound fishery is 100 tons. The GHL for the Tenakee Inlet herring spawn-on-kelp pound fishery will be announced on March 16, 2005, depending on the GHL remaining following the winter food and bait fishery.

Spawning in Tenakee Inlet has generally occurred between the last week in April and the first week of May (Table 4). During the 1970s through the late 1980s, herring primarily spawned along the south shoreline of Tenakee Inlet between Saltery Bay and Trap Bay. The most frequented spawning grounds were along the east and west shoreline of Kadashan Bay. During

the spring of 1989, aerial surveys revealed that herring had spawned in the East Point and Wachusett Cove areas on the Chatham Strait shoreline north of Tenakee Inlet. Additional herring spawn was observed south of Tenakee Inlet between South Passage Point and Basket Bay in Chatham Strait. This was the first time herring had been recorded spawning in areas other than their more traditional spawning grounds inside Tenakee Inlet. Spring of 1996 was the only season that significant spawning was recorded on the north shore of Tenakee Inlet. This spawn occurred on the shoreline from Tenakee Springs to Cannery Point. A total of 18.1 nautical miles of spawn occurred during the spring of 1996.

From 1998 through 2004, spawning has occurred inside Tenakee Inlet along its southern shoreline from Saltery Bay to South Passage Point and on the Chatham Strait shoreline south of South Passage Point (Figure 1). Significant spawning has occurred between South Passage Point and Basket Bay five of the past seven seasons (1998–2004). In 2000 all of the spawn occurred in Chatham Strait between South Passage Point and Peninsular Point. A total of 13.0 nautical miles of shoreline was mapped as receiving herring spawn in spring 2004. Spawning inside Tenakee Inlet primarily occurred from Corner Bay to Crab Bay. Some light spawn occurred in outer Tenakee Inlet from eastern Trap Bay to South Passage Point, and south along the Chatham Straits shoreline to Don's Creek.

Regulations adopted by the Alaska Board of Fisheries (BOF) in January 2003 provide for a spawn-on-kelp fishery in Tenakee Inlet that occurred for the first time in April 2003. In 2004 there was less than 400 tons but more than 100 tons (bait harvest confidential) of GHL available to the spawn-on-kelp fishery. This provided a kelp allocation of 300 blades for single closed pounds and 500 blades each for double closed pounds. A total of 85 permit holders harvested 95 tons of product in Tenakee, with an ex-vessel value of $981,464.

CALENDAR OF EVENTS

The following is a calendar of events to be considered by pound operators for the 2005 fishing season.

January 4	-	News Release announcing 2005 Hoonah Sound GHL of 728 tons
January 4		2005 Experimental Gear Permit Applications available.
January 7	-	News Release announcing Request for Quotations (RFQ) for the Hoonah Sound/Tenakee Inlet Test Fishery. RFQ forms available at all Southeast Area Offices January 18.
February 15		2005 Management Plans available at all Southeast Alaska area offices.
No Specific Deadline/ Recommend March 1	-	U.S. Forest Service special-use permit applications (for use of National Forest land above mean high tide) must be submitted to obtain a special-use permit. Special-use permits are required to camp or store gear on National Forest land in conjunction with this fishery. Please contact the USFS directly for applications at (907) 747-4220.
February 22	-	Quotations due for test fishery pounds at 12:00 noon.
March 16	-	The department will issue a news release announcing the Tenakee Inlet herring spawn-on-kelp GHL and kelp allocation..
April 2	-	Kelp permits will be available at department area offices.
April 6	-	The fisheries will open by regulation to the capture of herring to be transferred into pounds.
April 13–May 9	-	Inclusive dates of documented herring spawning in Section 13-C from 1990–2004.
April 21–May 14	-	Inclusive dates of documented herring spawning in Section 12-A from 1990–2004.
June 7	-	Pounds must be completely removed from the fishing grounds.

REGULATIONS

The Alaska Board of Fisheries met in Sitka in January 2003 and modified the existing regulations for the herring spawn-on-kelp fishery in Section 3-B (Craig/Klawock) and Section 13-C (Hoonah Sound) and created new herring spawn-on-kelp fisheries in District 7 (Ernest sound) and Section 12-A (Tenakee Inlet). The District 7 fishery will be considered part of the Southern Southeast spawn-on-kelp limited entry fishery (L21C) and will be discussed in the Southern Southeast Spawn-On-Kelp Management Plan. Section 12-A is considered part of the Northern Southeast spawn-on-kelp limited entry fishery (L21A).

The board modified the kelp allocation tables for the Hoonah Sound (Section 13-C) spawn-on-kelp herring pound fishery and created a kelp allocation table for the Tenakee Inlet (Section 12-A) fishery.

In Section 13-C, the kelp allocation is as follows:

Guideline Harvest Range for Herring (tons)	Single Permit Closed Pounds	Double-Permit Closed Pounds	Triple-Permit Closed Pounds	Single Permit Open Pounds	Multiple Permit Open Pounds
100–249	None	none	none	60 fronds or 600 blades	60 fronds or 600 blades
250–399	200 blades	400 blades	500 blades	110 fronds or 1,100 blades	110 fronds or 1,100 blades
400–599	300 blades	500 blades	750 blades	160 fronds or 1,600 blades	160 fronds or 1,600 blades
600–799	1,000 blades	1,000 blades	1,500 blades	230 blades or 2,300 fronds	230 blades or 2,300 fronds
800 or more	1,000 blades	1,000 blades	1,500 blades	300 blades or 3,000 fronds	300 blades or 3,000 fronds

In Section 12-A, the kelp allocation is as follows:

Guideline Harvest Range for Herring (tons)	Single Permit Closed Pounds	Double-Permit Closed Pounds	Triple-Permit Closed Pounds	Single Permit Open Pounds	Multiple Permit Open Pounds
50–99	None	none	none	100 fronds or 1,000 blades	300 fronds or 3,000 blades
100–299	200 blades	400 blades	500 blades	150 fronds or 1,500 blades	450 fronds or 4,500 blades
300–499	300 blades	500 blades	500 blades	200 fronds or 2,000 blades	600 fronds or 6,000 blades
500–699	400 blades	500 blades	500 blades	250 fronds or 2,500 blades	750 fronds or 7,500 blades
700 +	1,000 blades	1,000 blades	1,000 blades	250 fronds or 2,500 blades	750 fronds or 7,500 blades

Besides modifying the kelp allocation tables the board also adopted proposals that clarified the allocation of herring between the bait fisheries, which include bait pound fisheries in addition to the winter food and bait fishery, and the spawn-on-kelp fisheries.

District 12 (Tenakee) harvest limit for the bait pound fishery will be 10 percent of the guideline harvest level for the Tenakee Inlet stock and the harvest limit for the winter food and bait fishery is 90 percent of that guideline harvest level. The Tenakee spawn-on-kelp pound fishery is allocated any remaining herring quota that is not taken in the winter food and bait fishery. In addition, if there are no active herring bait pound permits on March 15 each year, the remainder

of the seasonal GHL will be allocated to the herring spawn-on-kelp fishery. Any remaining GHL after the close of the spawn-on-kelp fishery in District 12 will be available for the bait pound fishery. The department announced, via a subsequent news release, the herring allocation for the spawn-on-kelp fishery on March 16, 2005.

In addition to modifying the kelp allocation tables and clarifying the herring allocation plans the board also adopted proposals that modified the overall management plan of the herring spawn-on-kelp fisheries. A summary of these actions includes:

1. After the last herring has been placed into the pounds, **two pounds** of two or more CFEC permit holders may drop a wall of their respective pounds to allow herring to swim between two connected pounds. The CFEC permit holders must notify the department representative prior to joining their pounds. Additional herring may not be transferred into the pounds once the two of them are joined.

   This does not change the definition of pounds as found in **5 AAC 27.130. LAWFUL GEAR FOR SOUTHEASTERN ALASKA AREA. (e)(1)** which, in part, states that webbing of a closed pound may not be part of the webbing of another closed pound. Therefore, after fishing operations have ended, two pounds may be joined, but they must remain up to that point a single unit of gear.

   If two pounds are joined the regulation that allows for retention of herring for six days will be enforced on the pound which first had herring placed into the structure. Only two pounds can be joined together.

2. All lines or structures used to suspend kelp must have legible tags above the water surface that states the actual number of blades or fronds on that line or structure along with the permit holder's first and last name. A CFEC permit holder must keep that permit holder's kelp on separate lines or structures.

   The term structure was added to allow for pound operators that suspend their kelp on something besides lines the ability to identify the number of blades or fronds being used.

3. For the purpose of this fishery, a closed pound is considered to be fishing once herring have been introduced into the closed pound structure; a closed pound is considered to have stopped fishing once all of the herring have been released and all spawn-on-kelp product has been removed from the closed pound structure.

4. For the purpose of this fishery, an open pound is considered to be fishing once kelp has been attached to the open pound structure; an open pound is considered to have stopped fishing once all spawn-on-kelp product has been removed from the open pound structure.

The reason for the latter two changes is to define how a permit holder may participate in both of the Hoonah Sound and Tenakee Inlet fisheries in which they hold a permit. For example, for a Northern Southeast spawn-on-kelp CFEC permit holder to operate a closed pound in both Section 13-C and 12-A all herring must be released and product harvested from one Section before a pound can be actively fished in another Section. Since the Northern Southeast herring spawn-on-kelp pound fishery is considered a single fishery, only one unit of gear (or pound) may be used at any one time.

ADF&G has received inquiries from permit holders wanting to transport pound structures immediately after fishing from one regulatory area to another in order to participate in two

fishery locations without the added expense of a second pound structure. Regulation 5 AAC 27.185 (t), however, requires that "…the person must maintain the pound and webbing in place for at least four weeks. To optimize hatching success the person must position egg-covered webbing in its original configuration with adequate water circulation on all sides." Fishermen are reminded that this regulation remains in effect. After consideration of the regulatory intent "to optimize hatching success" ADF&G and Alaska Bureau of Wildlife Enforcement would allow transport of the pound structure to another area provided that the egg-covered webbing:

1) Remains anchored in the original area,

2) Is supported in its original configuration, and

3) Is marked according to 5 AAC 27.185 (k) with the first and last name and the five-digit CFEC number of the permit holder clearly marked.

To be considered as "supported in its original configuration" and in compliance with this regulation, the permit holder must both support the net at the surface with adequate floatation and separate the sidewalls of the net so there is "adequate water circulation on all sides." Since these requirements could be met with buoy bags or other material for floatation and pipe or other rigid material to separate the sidewalls, ADF&G will provide for a fishery-wide experimental gear permit (under the authority of AS 16.05.050(10)) for the 2005 season. This permit will exempt permit holders in Northern Southeast Alaska herring spawn-on-kelp fisheries from the requirement that the pound structure will be left in place; provided that all other provisions of 5 AAC 27.185 (t) and (k) still remain in effect. Since ADF&G will maintain a copy of this permit on file for all permit holders, individual permit holders do not need to apply or have such permits in their possession.

The waters open for the northern spawn-on-kelp fisheries are defined by regulation. The open waters for Section 12-A include the waters of Chatham Strait and Tenakee Inlet south of the latitude of **57°46.00'** N. latitude and north of the latitude of Peninsular Point at **57°30.30'** N. latitude and west of the longitude of **134°50.00'** W. longitude. The waters open for the Hoonah Sound fishery include: the waters of Hoonah Sound north and west of a line from Point Marie to a point on the northern shore of Hoonah Sound at 57° 37.38' N. latitude and 135° 27' W. longitude (Figure 2).

Additional regulations pertaining to the Hoonah Sound and Tenakee Inlet pound fisheries can be found in the 2003–2004 Commercial Herring Fishing Regulations booklet. under CHAPTER 27, ARTICLE 4, SOUTHEAST ALASKA AREA. The applicable sections are: 5 AAC 27.110 FISHING SEASONS FOR SOUTHEASTERN ALASKA AREA (f), 5 AAC 27.130 LAWFUL GEAR FOR SOUTHEASTERN ALASKA AREA (d) and (e), 5 AAC 27.185 MANAGEMENT PLAN FOR HERRING SPAWN-ON-KELP IN POUNDS (a) through (x), and 5 AAC 27.187 BUYER AND PROCESSORS REPORTING REQUIREMENTS FOR SPAWN ON KELP IN POUNDS FOR THE SOUTHEASTERN ALASKA AREA. Harvesting requirements for *Macrocystis* kelp are found in 5 AAC 37.100 PERMITS. AND in 5 AAC 37.300 HARVESTING REQUIREMENTS FOR MACROCYSTIS.

It is the responsibility of fishers to carefully review and follow these regulations.

EXPERIMENTAL GEAR PERMITS

A proposal was presented to the Alaska Board of Fisheries in 2003 to modify closed pound gear from the present requirement of a maximum of 400 square feet at the surface and a maximum depth of 30 feet. The proposal had requested maintaining the same maximum 12,000 cubic foot net volume, but by using a shallower net with a greater surface area. The premise for the proposal was that net pens with larger surface area and shallower depth would better focus the herring to spawn on the kelp rather than the webbing. This proposal was not adopted because insufficient supporting information was supplied, and because there is a general need to have standardized gear for an orderly fishery. ADF&G indicated to the Board that it would continue to work on development of gear through the experimental gear permit option as authorized under AS 16.05.050(10).

As a follow-up, two non-standard pound net configurations were authorized on an experimental basis in 2003. One net was 20x30x20-foot deep, one was 20x40x15-foot deep, and both were 12,000 cubic foot in volume. Results from the 2003 study indicated that the experimental pounds were associated with greater total poundage and greater proportion of product graded as Jumbo. Because only two pounds were involved, the results were inconclusive; the positive result may be attributable to the altered pound dimensions, or to other less measurable factors. However, the promising results spurred numerous inquiries from permit holders wishing to obtain experimental gear permits for the 2004 season. In an effort to continue exploring the option of allowing different pound configurations, ADF&G announced that it would accept all requests for experimental gear permits. Ultimately, 45 experimental permits were issued for various pound configurations. The experimental closed pounds fell into 3 size categories that included 15 permits for 24x24x20-foot deep pounds, 21 permits for 30x20x20-foot deep pounds, and 9 permits for 40x20x15-foot deep pounds. Two additional experimental permits were issued for open pounding using a "longlining" method. The harvest statistics from the experimental pounds used in the 2004 Hoonah Sound fishery are summarized in the table below:

Pound Dimensions	Total Pounds Landed	Number Permits	Average LBS/ Permit
20'x20'x30'd (Double-Permit)	41,096	12	3,425
20'x20'x30'd	215,148	47	4,578
*40'x20'x15'd	44,389	9	4,932
*30'x20'x20'd	97,317	21	4,634
*24'x24'x20'd	73,734	15	4,916
*Longline	3,087	2	1,543

*Experimental pounds, gear.

The above harvest statistics show that the experimental pounds, on the average, had higher SOK production than the standard pounds.

ADF&G is concerned by the increased complexity of enforcing pound size restrictions if various pound configuration are allowed. The department explored this issue by measuring 28 of the experimental pounds on the grounds during the 2004 Hoonah Sound fishery. The results of the measurements along with the expected net dimensions are shown in Table 6. The surface area measurements were simple to do in the field, as expected, but measuring the depth of the net was

more problematic. One method of measuring the depth might be to use a SCUBA diver though this was discounted as impractical for general enforcement activity. Instead, a weighted tape measure was employed under the assumption that the weight would stop when it reached the bottom panel of the net pen. ADF&G measured the depth on at least two sides of each net pen assessed and averaged the two depth measurements. The results were that 15 pounds measured from 0'-3' deeper, 8 pounds measure from 3'-5' deeper and 5 pounds measured from 5'-9' deeper than the permitted depth. No conventional (20'x20'x30'd) herring pounds were measured for comparison to the experimental pounds.

In past years, underwater observations using SCUBA equipment have shown that though the seam between the bottom panel and the side panel may be at the proper depth, the bottom panel of the net pens can sag well beyond the depth of the seam. The severity of the sagging is likely dependent upon a number of variables including; the type of material used in the netting, excess webbing on the bottom panel (some by design), whether spreader frames are used or not, and how much dead herring, kelp, or herring eggs have accumulated on the bottom of the net. If the sagging affect is severe enough the bottom panel can continue at a steep angle downward much as a continuation of a side panel for a number of feet. Thus, any depth measurements using a weighted measuring device might record results greater than the depth for which the net was originally designed.

ADF&G is committed to working with the industry to continue to evaluate the option of changing the gear allowed by regulation through the Board of Fisheries process. The department will again make available experimental gear permits to all permit holders upon request. These permits are available at all Southeast Fish and Game area offices. No permits will be issued for net volumes greater than 12,000 cubic feet. ADF&G recommends that a significant portion of each larger group, and of the overall fishery, should continue to operate standard 20x20x30 foot-deep nets to provide for a good comparison between gear types following the 2005 season. ADF&G again plans to check the depth of nets using a weight and tape measure to evaluate enforceability and to ensure compliance with net volume limits. The department is seeking input from permit holders on how enforceability issues might be addressed. In the event that violation of net depths is not enforceable, ADF&G may not recommend a change from current regulations, and is not obligated to continue issuing experimental gear permits beyond the current season.

LIMITED ENTRY

On January 1, 1995, the Commercial Fisheries Entry Commission adopted a regulation placing the Southeastern Alaska herring spawn-on-kelp pound fisheries in the Hoonah Sound and Craig/Klawock areas under limited entry. By regulation, the maximum number of limited entry cards for the Northern Southeast area spawn-on-kelp fishery (L21A) is 109. Based on administration of the point system adopted in February of 1995 CFEC has now issued 102 limited entry permit cards for this fishery. Up to 5 interim-use permit cards may be issued during the 2005 season, pending on the outcome of hearings and administrative reviews now in progress. At most, 107 fishers will be eligible to participate in the Hoonah Sound and/or Tenakee Inlet fisheries during the 2005 season.

HARVEST AND ALLOCATION OF KELP

A permit is required to harvest kelp for use in pounds (5 AAC 37.900). Kelp harvest permits may be obtained from local ADF&G offices. Kelp blades will be allocated equally among permit holders fishing the same type of gear. The amount of kelp allowed to be harvested for each permit holder is based on the kelp allocation table as indicated under REGULATION 5 AAC 27.185 (d) plus an allowance for breakage and loss during transport. Specific allocation limits are for individual permit holders and are dependent upon the herring GHL and the type of gear to be used. The allocations for the 2005 season are as follows:

Section 13-C (Hoonah Sound):

- Single permit closed pounds 1,000 blades of *Macrocystis* kelp;
- Double permit closed pounds 1,000 blades of *Macrocystis* kelp (per permit holder);
- Triple permit closed pounds 1,500 blades of *Macrocystis* kelp (per permit holder);
- Single permit open pounds 2,300 blades or 230 fronds of *Macrocystis* kelp;
- Multiple permit open pounds 2,300 blades or 230 fronds of *Macrocystis* kelp.

Section 12-A (Tenakee Inlet):

- Single permit closed pound 300 blades of *Macrocystis* kelp;
- Double permit closed pound 500 blades of *Macrocystis* kelp (per permit holder);
- Triple permit closed pound 500 blades of *Macrocystis* kelp (per permit holder);
- Single permit open pound 2,000 blades or 200 fronds of *Macrocystis* kelp;
- Multiple permit open pound 6,000 blades or 600 fronds *Macrocystis* kelp.

Total harvest limits are set on the kelp permit, and generally include a 10% breakage allowance. Kelp permits may be issued to individuals holding CFEC permit cards for the Hoonah Sound and/or Tenakee Inlet fisheries who are harvesting for a group of CFEC permit holders, provided that the name and amount harvested for each permit holder is listed on the permit. Kelp permits may be obtained from local Alaska Department of Fish and Game offices beginning April 2 and must be completed and returned to the department within 30 days after harvesting of kelp. A separate permit is required for each separate fishery for which kelp is harvested.

The kelp allocation incentive table is intended to encourage fishers to share closed herring pounds during times when forecast herring stock abundance and the associated herring GHL is above threshold but relatively low, and to allow fishers to fish more single closed pounds when forecast herring abundance is relatively high. As the herring forecast and GHL increases, the kelp allocation becomes increasingly more liberal. The kelp allocations as set forth in the

allocation table are upper limits, not required amounts, and fishers may decide within that limit how much kelp they will actually suspend from their pounds. Use of open pounds is also encouraged through kelp allocations as an option to help minimize herring handling and impoundment. Fishers choosing to fish open pounds are allowed to fish with larger amounts of kelp blades or with kelp fronds with the blades naturally attached to the kelp stalk. When harvesting fronds of kelp for use in open pounds, fishers are reminded that provisions of 5 AAC 37.300 HARVESTING REQUIREMENTS FOR MACROCYSTIS KELP (a)–(d) prevent harvest using diving gear, dislodging plants from the bottom, or cutting of kelp stalks at depths greater than one foot below the water surface.

FISHERY CONDUCT AND MANAGEMENT

Suitable sites for pounds in Hoonah Sound and Tenakee Inlet are limited. To avoid herring mortality and damage to pounds, operators should locate their pounds in an area with minimal exposure to wind and wave action, and with a relatively deep bottom. The distance between the location where herring are captured and where the pound will be anchored should be minimized, since long towing distances can cause stress induced spawning, egg loss, de-scaling of herring, and mortality of herring. The area between Emmons Island and Vixen Island has been the focus for anchoring pounds since herring normally spawn near this area.

The department will be closely monitoring herring activity in Hoonah Sound and Tenakee Inlet by vessel and aerial surveys. Results of aerial surveys will be announced by recorded message at 907-747-5022 (Sitka office) or 907-465-8905 (Douglas office) or by ADF&G news release if findings have a significant bearing on when fishing activity should begin. Permit holders may begin catching and transferring herring at any time after 12:01 a.m., April 6, 2003, until closed by emergency order. If it appears spawning will occur earlier than this date, the fishery may be opened earlier to avoid loss of the fishery.

In Hoonah Sound, the department will station a state vessel and personnel on the grounds when herring are available for capture. In Tenakee Inlet, department personnel will be stationed in Tenakee Springs and will use a skiff to monitor fishing activity. Department personnel will closely monitor all phases of the fishery to assure compliance with regulations. All fishery announcements, including updates of herring activities and fishery openings/closures, will be broadcast by VHF radio, channel 10. Fishers are expected to have a VHF radio.

The capture and transfer of herring into pounds will be monitored to document any mortality or rough handling of herring. To avoid mortality, the transport of herring to the pound site should be done with the pound itself or a pushable/towable net pen. Transporting with a purse seine is discouraged except for very short distances. Pound operators should **slowly push pounds or tow alongside** of the transfer pound to avoid prop wash and crushing herring against the net. Pound operators are also advised to minimize the distance of towing of herring to avoid stressing the herring and egg loss which can result in poorer quality product. Fishers are asked to avoid making and holding large sets intended to fill multiple pounds in order to avoid mortality and stress of herring. The department may close the fishery or limit fishing to daylight hours only in order to minimize stress and mortality, to reduce potential set size, and to better monitor the fishery.

In 2005, the department will continue to monitor the practice of **"top off fishing."** This practice has been successfully used to stimulate new spawning in pounds and therefore to produce better spawn-on-kelp quality and quantity. The department has a concern, based on observations during

the 2003 season, that the practice of "top off fishing" was abused by some fishermen. Regulations allow herring additions through the fourth day from when herring are first added to a pound, but **neither kelp nor herring may be added to a pound after herring has been released or product has been harvested** (5 AAC 27.185(q)). Herring may be retained in a pound for a maximum of six days from the day first placed into a pound, and then must be released (5 AAC 27.185(s)). These two regulations are fundamental to the health of the herring spawning stocks and, along with gear size and kelp allocation limits, provide for sustainable use by limiting the harvest of herring by the fishery. **Fishermen must take responsibility to ensure that when adding herring to a pound that herring are not at the same time swimming out of the pound thereby exchanging spawned-out herring with fresh herring and harvesting more than one pound net full of herring during a season.** If any such cases are observed or reported in 2005, then the department will turn such cases over to the Alaska Bureau of Wildlife Enforcement for citation. Additionally, the department will consider closure of the fishery to all further fishing by emergency order or limiting fishing to specific daylight hours only. Should the latter two measures become necessary, then such measures may have the unwanted consequence of preventing some permit holders from the capture of herring that season. The department is requesting the assistance of permit holders to ensure that additions of "top off fishing" are only conducted in compliance with regulations and that violations are reported.

Although ADF&G has determined a limitation on the number of kelp blades that can be harvested and placed in each permit holder's pound, fishers are encouraged to fish the number of blades which will maximize the overall quality and value of their product rather than simply to fish the total amount allowed. Other measures that are already in general use in the fishery that might be considered in trying to maximize spawn-on-kelp quality and value include the following:

1. pound nets shaped with internal frames to provide the full net volume,
2. adjusting the kelp height in the pound to the depth of active spawning by testing with a weighted string,
3. fishing and transferring herring to pounds when herring are fully mature,
4. small top-off sets added over a 2-3 day period,
5. limiting herring density in the net to a conservative amount since spawning is retarded by excessive crowding,
6. web depth adjustments to provide good water exchange, and
7. working in a smaller group to provide adequate time for tending pounds.

In the 2004 Northern Southeast Alaska SOK fishery, 85 permit holders were successful in making landings in both fishing areas. The herring spawning dates in Hoonah Sound and in Tenakee Inlet have been very similar, especially in recent years (Figure 3). This will create challenges for those permit holders wanting to fish in both areas in any one year. Fishers are warned that only one unit of gear or one pound may be fished by a permit holder at any given time. The Board of Fisheries provided regulatory language defining when a pound is fishing and when it is not (see "REGULATIONS" section of this document). Fishers are also reminded that the permit holder must be physically present at the pound site at all times during operation of the pound as defined in Section (l) of 5 AAC 27.185 MANAGEMENT PLAN FOR HERRING SPAWN ON KELP POUNDS IN SOUTHEASTERN ALASKA AREA. The historic spawn-timing graph presented in Figure 3 is provided for general reference.

The Hoonah Sound area is a high-use recreational area that is valued for its fish and wildlife resources as well as its wilderness character. ADF&G has received a number of public complaints regarding pound structures and other material that were abandoned either in the water or on the upland areas. Under the terms of a required United States Forest Service conditional use permit all materials that are used in the fishery should either be removed from the area or stored in the upland areas (see page 15).

HARVEST AND PRODUCTION

Each permit holder's spawn-on-kelp blades must remain separate from other permit holder's spawn-on-kelp blades until after processing and grading is completed. Permit holders will be allowed to harvest all spawn-on-kelp product produced in their pounds. A permit holder's fish ticket must report only the spawn-on-kelp harvested from his/her own pound. Each permit holder fishing a **jointly** operated pound shall be issued a fish ticket and the **sum** of the weights of those tickets shall equal the total weight of product produced in the jointly operated pound. All fishers and any vessel carrying unlanded and unprocessed spawn-on-kelp product from the fishing grounds must first contact ADF&G and hail the estimated amount of spawn-on-kelp product harvested and indicate the intended time and location where a landing will occur. For any product that has been landed on the grounds to a licensed processor, the processor (not the fishers) will be required to hail ADF&G with delivery weight on board for each landing.

REQUIREMENTS FOR BUYERS

Reporting requirements for buyers and processors of spawn-on-kelp product from Southeast Alaska spawn-on-kelp fisheries can be found in **5 AAC 27.187 BUYER AND PROCESSORS REPORTING REQUIREMENTS FOR SPAWN ON KELP IN POUNDS FOR THE SOUTHEASTERN ALASKA AREA.**

Buyers, processors, and permit holders should read and become familiar with these reporting requirements.

Operators of floating processing vessels, tender vessels, and catcher-processors will be required to report in person, by VHF radio, or by telephone, to the Department of Fish and Game office in Sitka or directly to department area management biologists on the grounds before the start of processing operations in Hoonah Sound. These reporting requirements are specified by regulation **5 AAC 39.130 (g).**

LICENSE REQUIREMENTS

Operators must obtain a 2005 entry permit (L21A) from the CFEC. Individuals who do not have a CFEC permit but are assisting in the operation of the fishery in any manner, must have a 2005 crewmember license. All commercial vessels used in the fishery (including skiffs) are required to have a 2005 vessel license with the CFEC. Fishers are required to display the permanent vessel license plate (ADF&G number) on both sides of the hull, cabin, or mast in permanent symbols at least 12-inches high and with lines at least one-inch wide that contrast with the background.

Applications for vessel and CFEC permits are available from all offices of the Alaska Department of Fish and Game or they can be obtained by writing the Commercial Fisheries Entry Commission, 8800-109 Glacier Highway, Juneau, Alaska 99801-8079. Fishers are reminded to apply for all licenses well in advance of the fishery. Crewmember licenses may be obtained from local vendors in most communities.

OTHER AGENCY REQUIREMENTS

Prospective pound operators are advised to consider other agency requirements for constructing and operating pounds in Hoonah Sound and/or Tenakee Inlet. Pound operators are urged to contact the Alaska Department of Natural Resources, U.S. Forest Service, the National Marine Fisheries Service, and the United States Coast Guard to determine other regulations and requirements. For your convenience, telephone numbers for those agencies are listed below.

DEPARTMENT OF NATURAL RESOURCES

The Alaska Department of Natural Resources (907-465-3400) manages the use of tide and submerged lands seaward of mean high water (9.1 ft.).

U.S. FOREST SERVICE

In the Hoonah Sound and Tenakee Inlet areas, the U.S. Forest Service has jurisdiction over and manages most of the lands above mean high tide. People who plan to use National Forest land in connection with the fishery must apply for a special use permit from the Forest Service prior to any occupancy. Special use permit applications are available at the Sitka Ranger District Office, 204 Siginaka Way, Sitka, Alaska 99835, (907-747-6671). Completed applications should be submitted to the Sitka Ranger District well in advance of operations to ensure that a permit is received in time for the fishery. Examples of use needing a permit include (but not limited to): camping on National Forest land in conjunction with the commercial fishery, and storage of gear on the National Forest.

NATIONAL MARINE FISHERIES SERVICE

The National Marine Fisheries Service (907-747-6940) regulates activities that might harm marine mammals.

UNITED STATES COAST GUARD

Structures such as floating fish pens are subject to the requirements of the Code of Federal Regulations, Title 33, Part 64. This regulation requires an owner to apply for a Coast Guard permit and to install and maintain a light or other private aid to navigation if the Coast Guard determines it to be necessary to protect maritime navigation.

Herring pounds used in the spawn-on-kelp pound fishery do not require permits for private aids to navigation at this time, provided the owners:

1. Place two signs on opposite corners of the structure. These signs will be worded “Danger, Fish Pens” (Figure 4).
2. Place a single, all-points white light on one corner of structures less than 400 square feet in size.
3. Place a single, all-points white light on every corner of structures larger than 400 square feet in size.
4. Anchor fish pens within the boundary area specified in ADF&G regulation 5 AAC 27.185 (f)(3) or (4) (Figure 2).

If all these conditions are not met, the permit holder must apply to the Coast Guard for an individual “Private Aids to Navigation Permit.” If you have questions, call the Coast Guard Aids to Navigation office, at (907) 463-2254.

TABLES AND FIGURES

Table 1.–Hoonah Sound (Section 13-c) herring spawning stock and fishery performance, 1971–2004.

Year	Spawn Dates	Nautical Miles Spawn	Estimated Escapement (tons)	SOK Harvested (tons)
1971	5/10-5/17	2.5	833	
1972	5/11-5/12	1.5	666	
1973	N/A	1.0	333	
1974	14-May	3.0	999	
1975	N/A	N/A		
1976	5-May	1.0	333	
1977	N/A	3.5	1,166	
1978	N/A	5.3	1,765	
1979	N/A	0.5	167	
1980	N/A	N/A		
1981	4/30–5/01	2.3	750	
1982	4/29–5/01	1.5	500	
1983	1–May	1.0	333	
1984	4/26–5/01	3.0	540	
1985	5/01–5/03	3.5	1,166	
1986	4/28–5/01	3.8	1,249	
1987	4/28–5/02	3.8	740	
1988	4/30–5/01	5.0	1,665	
1989	4/16–4/20	17.0	4,000	
1990	4/13–4/28	10.0	2,350	11.9
1991	4/19–4/24	8.7	2,175	13.3
1992	4/22–4/24	10.8	5,714	23.1
1993	4/27–4/29	5.7	1,099	14.0
1994	4/21–4/23	9.0	2,450	32.7
1995	4/20–4/21	4.5	274	27.4
1996	5/02–5/9	10.1	4,023	
1997	4/25–4/28	14.5	5,884	65.2
1998	4/23–4/27	14.5	6,472	85.6
1999	4/27–5/1	13.8	4,426	71.6
2000	4/27–4/30	13.0	3,635	35.7
2001	4/27–5/1	13.7	8,538	66.2
2002	4/25–4/27	11.9	4,936	136.6
2003	4/23–4/27	16.7	9,423	141.5
2004	4/22–4/29	11.1	7,502	237.4
Average 1971-2004		**7.1**	**2,691**	**NA**
Average 1990-2004		**11.2**	**4,593**	**55.8**

Note: Shaded estimated escapement are based on average spawn density from years 1989–2002.

Table 2.–Percent-at-age composition of spawning Hoonah Sound herring, 1991–2004 and forecast age structure for 2005.

	Age Class					
Year	3	4	5	6	7	8+
	Percent at Age Class					
1991	44	8	4	15	22	5
1992	7	55	6	4	14	11
1993	7	17	56	8	1	10
1994	3	10	35	42	5	6
1995	25	6	16	30	19	4
1996	83	13	1	1	2	1
1997	8	80	7	2	2	1
1998	2	13	77	7	1	1
1999	3	5	13	72	6	1
2000	23	10	10	24	31	2
2001	17	31	5	6	14	27
2002	4	27	24	6	7	31
2003	5	12	30	25	7	21
2004	1	6	13	26	26	30
Forecast 2005	3	2	7	13	25	50

Table 3.–Hoonah Sound herring spawn-on-kelp fishery summary, 1990–2004.

	1990	1991	1992	1993	1994	1995
Herring Quota (tons)	150	150	150	150	150	150
Harvest Quota (tons)	11	12	12	12	12	12
Harvest (tons)	11.9	13.25	23.12	14.0	32.7	27.4
Exvessel Value	$201,348	$193,715	$453,152	$542,080	$1,683,396	$1,175,460
Average Price/lb	$8.46	$7.31	$9.80	$19.36	$25.74	$21.45
Average Income	$2,034	$2,334	$4,196	$8,470	$15,444	$9,715
Number of Applicants	400	185	199	230	195	153
Number of Pounds	128	104	120	115	123	132
Number Selling Product	99	83	108	64	109	121
Kelp Allocation (blades)	240	280	240	160	140	100
Kelp Blade Harvest	31,260	28,355	27,255	16,260	18,340	15,195
Fishery Open-Closed	4/13–4/22	4/6–4/25	4/6–4/26	4/6–5/3	4/6–4/25	4/6–4/22
Fishing Occurred	4/13–4/22	4/15–4/25	4/17–4/26	4/26–5/2	4/21–4/24	4/17–4/22
Harvest Occurred	4/18–4/27	4/22–4/29	4/22–4/30	4/25–5/2	4/25–4/27	4/22–4/26
	1997	**1998**	**1999**	**2000**	**2001**	**2002**
Herring Quota (tons)	1421	700	778	359	366	1,264
Harvest Quota (tons)	114	56	62	29	NA	NA
Harvest (tons)	65.2	85.9	71.6	35.7	66.2	136.6
Exvessel Value	$920,000	$1,160,523	$1,005,529	$587,568	$1,006,000	$1,970,000
Average Price/lb	$7.05	$6.75	$7.02	$8.23	$7.60	$7.32
Average Income/Landing	$6,694	$10,092	$11,692	$6,251	$11,559	$20,408
Number of Applicants	139	133	106	106	NA	NA
Number of Pounds	0/113/18[b]	115	96	46/2/0[b]	42/3/1[b]	106/0/2[b]
Number Selling Product	112/12[a]	115	86	84	87	98
Kelp Allocation (blades)	430/860[a]	400/800[a]	400/800[a]	110/300[c]	120/300[c]	1,000/3,600[a]
Kelp Blade Harvest	68,755	54,275	42,025	29,820	29,966	113,713
Fishery Open-Closed	4/6–4/29	4/6–4/27	4/6–5/3	4/6–5/3	4/6–5/3	4/6–5/1
Fishing Occurred	4/22–4/29	4/18–4/26	4/29–5/2	4/27–4/29	4/25–4/28	4/24–4/27
Harvest Occurred	4/27–5/3	4/25–4/27	5/3–5/5	5/2–5/4	4/30–5/2	4/28–5/1
	2003	**2004**				
Herring Quota (tons)	427	1,207				
Harvest Quota (tons)	NA	NA				
Harvest (tons)	141.6	237.4				
Exvessel Value	$1,922,500	$2,071,347				
Average Price/lb	$6.79	$4.36				
Average Income/Landing	$17,800	$19,541				
Number of Applicants	NA	NA				
Number of Pounds	49/1/3[d]	92/12/2[b]				
Number Selling Product	108	106				
Kelp Allocation (blades)	500/300/750[d]	1,000/1,000/ 3,000[b]				
Kelp Blade Harvest	60,301	126,000				
Fishery Open-Closed	4/6–4/25	4/6–4/28				
Fishing Occurred	4/19–4/24	4/20–4/25				
Harvest Occurred	4/24–4/27	4/26–4/28				

[a] Closed pound/Open Pound.
[b] Double closed pounds/single closed pounds/open pounds.
[c] Single-permit closed pound/double-permit closed pound.
[d] Double closed pounds/single closed pounds/triple closed pounds
Note: No fishery occurred in 1996 since the biomass forecast was below the 1,000-ton threshold.

Table 4.–Tenakee Inlet (Section 12-a) herring spawn deposition timing, location, biomass estimates, and food & bait harvests.

Winter and Spring of the Year	Major Spawning Dates	Nautical Miles of Spawn (nm)	Spawning Biomass Estimate[a] (tons)	Food/Bait Quota (tons)	Food/Bait Harvest (tons)	Tenakee Inlet Herring Historical Spawning Locations
1979	5/9–5/11	3.3	2,500	200	0	Corner Bay to Crab Bay, Kadashan Flats
1980	4/28–5/2	3.9	4,485	400	504	Crab Bay to Saltery Bay
1981	4/27–5/5	9.3	7,500	750	847	Saltery Bay to Trap Bay, Kadashan Flats
1982	4/25–5/7	11.1	6,650	650	654	Saltery Bay to Corner Bay, Kadashan Flats
1983	4/25–5/6	13.1	8,870	875	799	Saltery Bay to Corner Bay, Kadashan Flats
1984	4/20–4/26	8.3	12,100	850	619	Crab Bay to Trap Bay, Kadashan Flats
1985	4/24–5/1	9.9	11,000	1,400	1,406	Saltery Bay to W. of Trap Bay
1986	4/27–5/1	8.3	12,500	1,700	2,040	Saltery Bay to W. of Trap Bay
1987	4/22–4/30	7.9	6,600	800	1,275	Crab Bay to Corner Bay, Tenakee Sp. to Cannery Pt.
1988	4/22–4/27	9.1	6,000	1,450	1,577	Saltery Bay to Trap Bay
1989	4/26–4/29	10.3	5,360	720	655	Chatham St. from Wachusett Cove to Basket Bay
1990	4/25–5/6	2.9	2,000	650	595	East Pt. to Wachusett Cove, Kadashan Bay to Crab Bay
1991	4/25–5/4	2.1	400	No fishery.		Kadashan Flats to Trap Pt., East Pt.
1992	5/5	trace	200	No fishery.		Long Bay Flats
1993	4/21–4/23	6.4	904	No fishery.		Seal Bay to Trap Bay
1994	4/24–4/26	0.25	400	No fishery.		Crab Bay to Saltery Bay
1995	4/26	0.05	200	No fishery.		South Passage Pt. to Don's Creek
1996	5/4–5/14	18.1	4,569	No fishery.		Trap Bay to Kadashan Bay, S. Passage Pt. to Little Basket Bay, Tenakee Sp. to Cannery Pt.
1997	4/26–5/7	14.4	10,000	300	97.5	Crab Bay to Corner Bay Pt., S. Passage Pt. to Basket Bay
1998	4/24–4/29	12.4	10,419	825	692	Trap Bay to Basket Bay, Kadashan Flats
1999	4/25–4/28	11.0	11,049	1,023	835	South Passage Pt. to Trap Bay
2000	4/26–5/3	13.8	9,149	542	494	Basket Bay to South Passage Pt., W. of Trap Bay
2001	4/21–5/1	12.2	7,575	906	775	Corner Bay to W. of Saltery Bay
2002	4/23–4/27	15.4	4,366	840	393	Trap Bay to Basket Bay
2003	4/25–4/28	12.2	3,262	528	328	Saltery Bay to W. of Corner Bay, S.Passage Pt. to Basket Bay
2004	4/28–5/3	13.0	3,274	399*	confidential	Crab Bay to Corner Bay, E. Trap Bay to Don's Creek

[a] Spawning biomass estimates were calculated from hydro-acoustical surveys from 1979 through 1986. Spawning biomass estimates were calculated from egg deposition surveys from 1987 through present.

* Quota based on ASA model forecast.

Table 5.–Percent-at-age composition of spawning Tenakee Inlet herring, 1982–2004 and forecast age structure for 2005

Year	Age Class 3	4	5	6	7	8+	Sample Type
	Percent at Age Class						
1982	24	7	48	21	0	0	Trawl/Nov.81’
1983	49	7	3	12	27	2	Trawl/Nov. 82’
1984	17	38	6	13	22	4	Trawl/Nov. 83’
1985	2	31	45	7	9	6	Trawl/Nov. 84’
1986	3	8.0	42	34	4	10	Seine/Jan. 86’
1987	30	14	16	28	10	3	Hand Seine/April 87’
1988	1	41	18	12	16	12	Cast Net/April 88’
1989	9	12	53	15	8	2	Cast Net/April 89’
1990	10	10	20	38	13	10	Cast Net/ April 90’
1991							
1992			No Sampling was performed 1991 and 1992				
1993	20	11	61	2	2	4	Cast Net/April 93’
1994							
1995			No Sampling was performed 1994–1996				
1996							
1997	5	88	5	1	1	0	Cast Net/May 97’
1998	3	9	81	7	1	0	Cast Net/April 98’
1999	3	4	11	78	2	1	Cast Net/April 99’
2000	16	8	8	23	42	3	Cast Net/April 00’
2001	15	19	5	7	20	33	Cast Net/April 01’
2002	14	28	18	7	7	27	Cast Net/April 02’
2003	13	10	24	18	5	31	Cast Net/April 03’
2004	1	15	22	20	20	22	Cast Net/April–May 04’
Forecast 2005	19	3	28	19	18	13	na

Table 6.–Tenakee Inlet herring spawn-on-kelp fishery summary, 2003–2004.

	2003	**2004**
Herring Quota (tons)	528	399
Harvest Quota (tons)	180	360
Harvest (tons)	47.6	95
Exvessel Value	$580,500	$981,464
Average Price/lb	$6.10	$4.68
Average Income/permit	$10,555	$11,684
Number of Permits participating	55	85
Number of Pounds	1/15/8[a]	1/32/6/2[b]
Number Permits Landing Product	55	85
Kelp Allocation (blades)	200/400/550[a]	300/500/500/2000[b]
Kelp Blade Harvest	35,375	39,000
Fishery Open-Closed	4/6–5/6	4/6–5/6
Fishing Occurred	4/25–4/28	4/28–5/1
Harvest Occurred	4/30–5/4	5/3–5/6

[a] single closed pounds/double closed pounds/triple closed pounds.

[b] single closed pounds/double closed pounds/triple closed pounds/experimental longline.

Table 7.–Permitted experimental pound dimensions and dimensions as measured by department staff on the grounds, 2004.

Pound No.	Permitted Pound Size	Measured Pound Size	Volume (cu.ft.)	Average Volume (cu. ft.)
1	24'x24'x20'd	24'x24'2"x21'3"d	12,327	
2	24'x24'x20'd	24'x24'x22'd	12,672	
3	24'x24'x20'd	24'x20'x23'd	11,040	
4	24'x24'x20'd	24x24'1"x23'd	13,292	
5	24'x24'x20'd	24'7"x23'3"x25'd	14,287	
6	24'x24'x20'd	24'2"x24'2"x27'd	15,773	
7	24'x24'x20'd	24'x24'x24'5"d	14,066	
8	24'x24'x20'd	24'x24'x23'10"d	13,726	
9	24'x24'x20'd	24'1"x24'1"x23'11"d	13,870	
10	24'x24'x20'd	24'x24'x26'd	14,976	
11	24'x24'x20'd	24'x24'x25'd	14,400	
12	24'x24'x20'd	24'x24'x24'6"d	14,112	13,712
13	30'x20'x20'd	28'x20'8"x20'd	11,575	
14	30'x20'x20'd	28'x20'8"x20'd	11,575	
15	30'x20'x20'd	28'9"x20'x19'7"d	11,259	
16	30'x20'x20'd	31'3"x19'10"x27'6"d	17,041	
17	30'x20'x20'd	29'3"x20'x22'd	12,870	
18	30'x20'x20'd	30'2"x20'x20'd	12,068	
19	30'x20'x20'd	31'x19'9"x20'd	12,245	
20	30'x20'x20'd	29'2"x19'6"x20'6"d	11,661	
21	30'x20'x20'd	28'7"x19'6"x21'5"d	11,938	
22	30'x20'x20'd	28'6"x19'6"x23'd	12,782	
23	30'x20'x20'd	27'x19'6"x24d	12,636	12,514
24	40'x20'x15'd	40'1"x20'1"	Net let down	
25	40'x20'x15'd	39'2"x20'x18'5"d	14,430	
26	40'x20'x15'd	39'10"x20'x23'7"d	18,783	
27	40'x20'x15'd	43'x20'2"x16'd	13,877	
28	40'x18.6"x16'd	40'x18'6"x16'5"d	12,151	14,810
		Overall Average	13,386	

Table 8. –Summary of herring spawn-on-kelp pounds contracted under the department's test fishery program, 2003–2004.

Year	Area	Number of Pounds	Maximum Kelp	Kelp Used	Pounds SOK	Percent of Value Bid	ADF&G Revenue	Comments
2003	Hoonah Sound	1	600	600	1,190	46.5%	$ 3,515	
2003	Hoonah Sound	1	1,200	1,200	5,100	46.5%	$ 12,811	
2004	Hoonah Sound	1	2,000	1,500	7,055	75.0%	$ 7,559	
2004	Hoonah Sound	1	2,000	2,000	6,307	75.0%	$ 6,303	
2004	Hoonah Sound	1	2,000	1,500	4,777	60.0%	$ 7,844	
2004	Hoonah Sound	1	2,000	1,600	3,745	65.0%	$ 4,036	
2004	Hoonah Sound	1	2,000	2,000	4,766	65.0%	$ 5,138	
2004	Tenakee Inlet	1	2,000	2,000	7,521	72.0%	$ 7,119	
2004	Tenakee Inlet	1	500	500	1,613	72.0%	$ 1,867	Double Pound
2004	Tenakee Inlet	1	2,000					Pound not successful

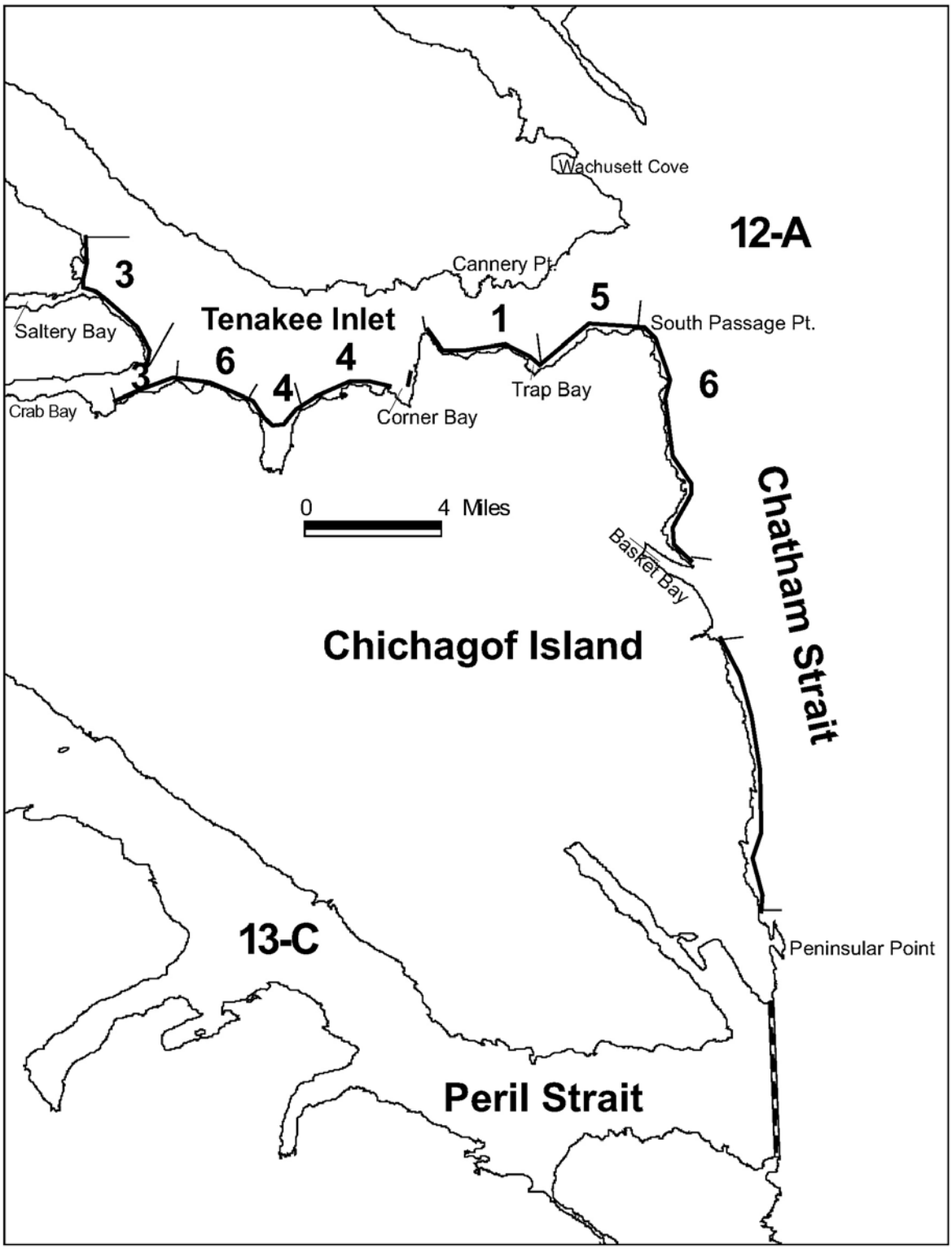

Figure 1.–Herring spawn distribution in Tenakee Inlet 1998–2004. Numbers within delineated sections of shoreline indicate number of seasons herring spawn was recorded along that section of shoreline from 1998–2004.

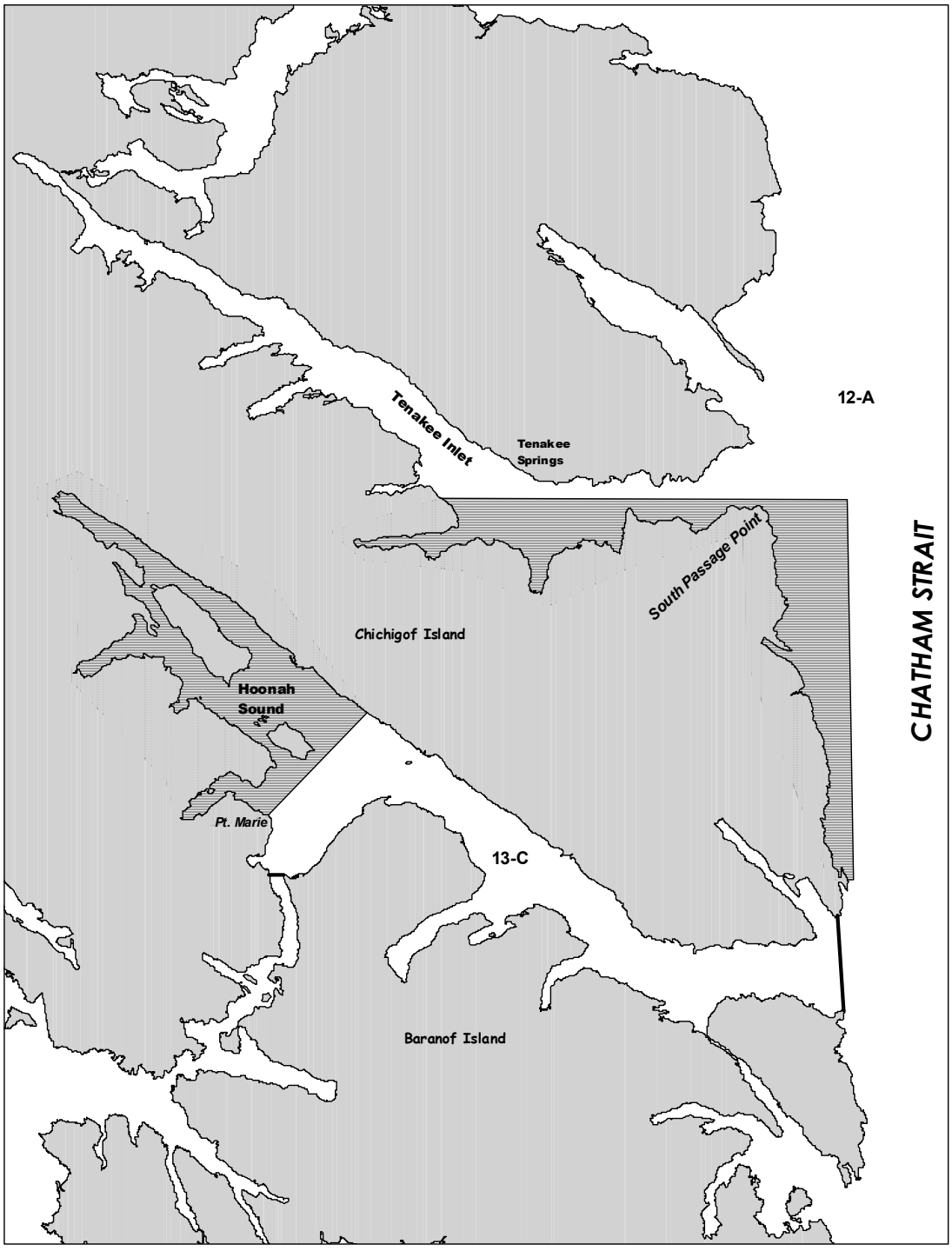

Figure 2.–Areas open (dark shade) to spawn-on-kelp fishery in Hoonah Sound and Tenakee Inlet.

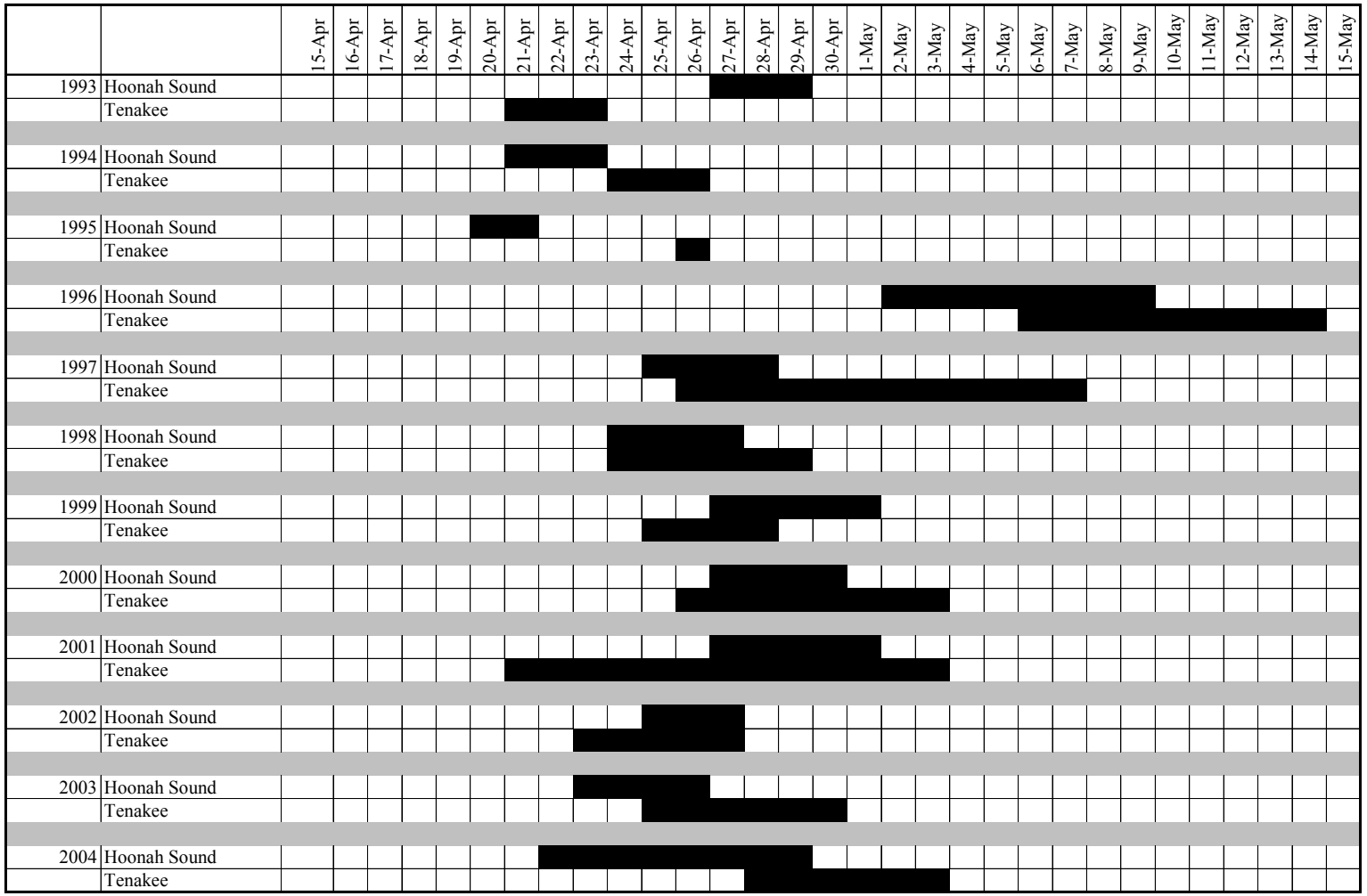

Figure 3.–A Comparison of Hoonah Sound and Tenakee Inlet herring spawning dates for years 1993–2004. Black bar indicates dates of active spawning.

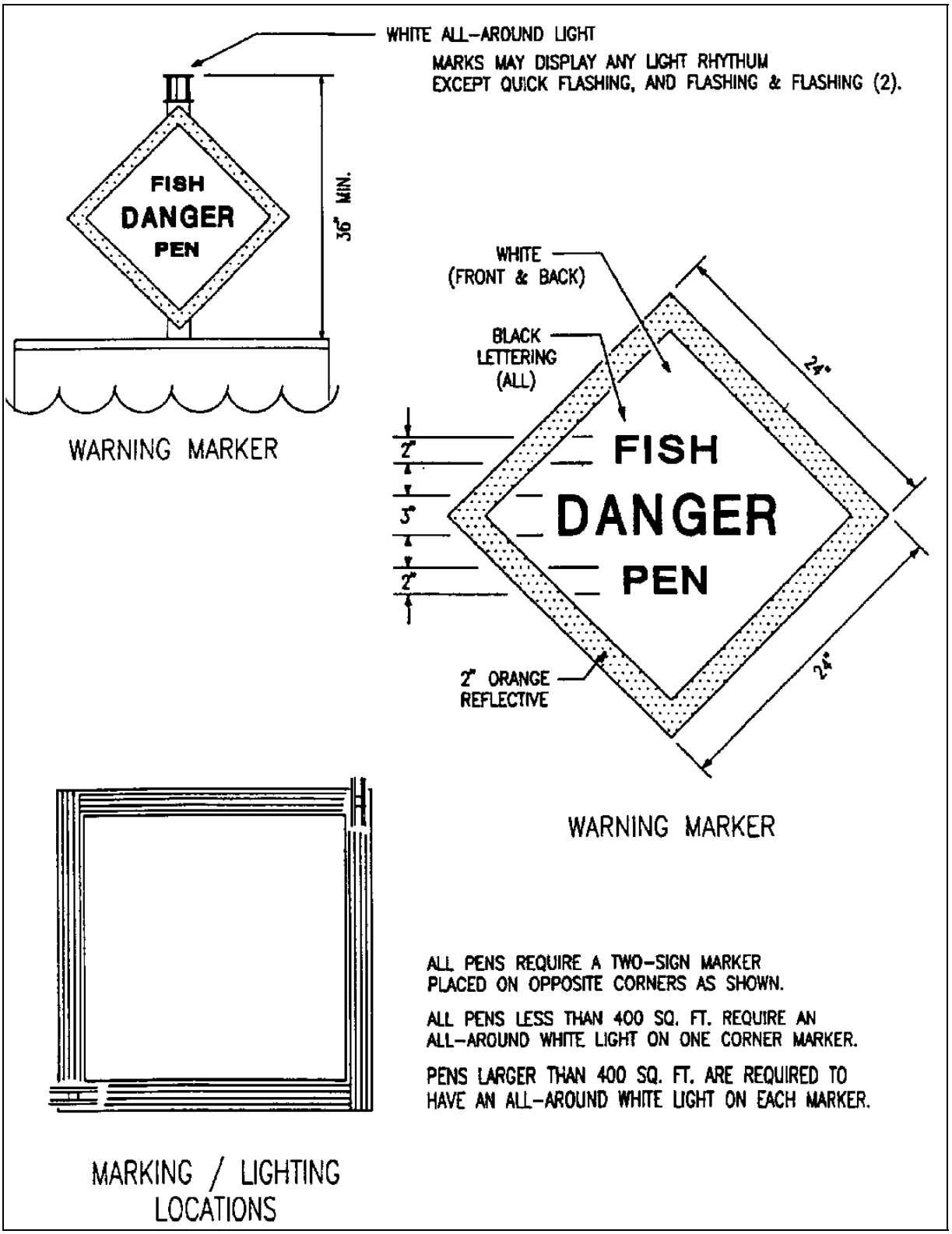

Figure 4.–Coast Guard requirements for marking pounds.

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